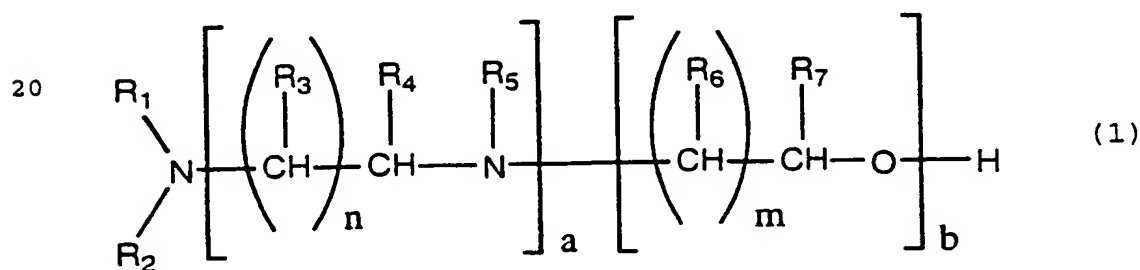


WHAT IS CLAIMED IS:

1. A method for producing a rigid polyurethane foam, which comprises reacting a polyol with a polyisocyanate in the presence of an amine catalyst and a blowing agent, wherein as the amine catalyst, at least one amine compound having at least one type of substituent selected from the group consisting of a hydroxyl group, a primary amino group and a secondary amino group in its molecule, or N-(2-dimethylaminoethyl)-N'-methylpiperazine, is used, and as the blowing agent, 1,1,1,3,3-pentafluoropropane (HFC-245fa) and/or 1,1,1,3,3-pentafluorobutane (HFC-365mfc) is used.

2. The method for producing a rigid polyurethane foam according to Claim 1, wherein the amine compound having at least one type of substituent selected from the group consisting of a hydroxyl group, a primary amino group and a secondary amino group in its molecule, is at least one amine compound of the following formula (1):

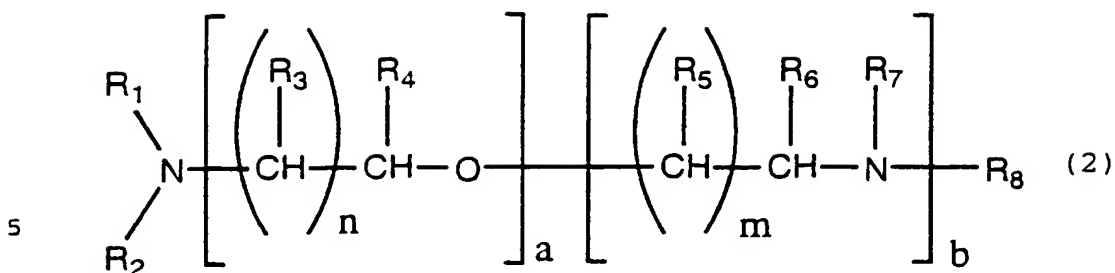


wherein each of R₁ to R₇ which are independent of one another, is hydrogen, a C₁₋₁₆ alkyl group, a C₁₋₁₆ aryl group, a C₂₋₆ hydroxyalkyl group, a C₂₋₆ aminoalkyl group, a C₂₋₆ monomethylaminoalkyl group or a C₂₋₆

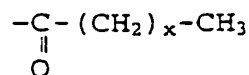
dimethylaminoalkyl group, each of n and m which are independent of each other, is an integer of from 1 to 11, and each of a and b which are independent of each other, is an integer of from 0 to 5, provided that R₅ and R₁ or
5 R₂ may together form a cyclic compound having a piperazine structure, an imidazole structure or an imidazoline structure.

3. The method for producing a rigid polyurethane foam according to Claim 2, wherein in the formula (1), each of
10 R₁ to R₇ which are independent of one another, is hydrogen atom, a methyl group, a hydroxyethyl group, a hydroxypropyl group, an aminoethyl group, an aminopropyl group, a monomethylaminoethyl group, a monomethylaminopropyl group, a dimethylaminoethyl group
15 or a dimethylaminopropyl group, provided that R₅ and R₁ or R₂ may together form a cyclic compound having a piperazine structure.

4. The method for producing a rigid polyurethane foam according to Claim 1, wherein the amine compound having
20 at least one type of substituent selected from the group consisting of a hydroxyl group, a primary amino group and a secondary amino group in its molecule, is an amine compound of the following formula (2):



wherein each of R₁ to R₈ which are independent of one another, is hydrogen, a C₁₋₁₆ alkyl group, a C₁₋₁₆ aryl group, a C₂₋₆ hydroxyalkyl group, a C₂₋₆ aminoalkyl group, a C₂₋₆ monomethylaminoalkyl group, a C₂₋₆ dimethylaminoalkyl group or



wherein x is an integer of from 0 to 3, each of n and m which are independent of each other, is an integer of from 1 to 11, and each of a and b which are independent of each other, is an integer of from 0 to 10, provided that R₇ and R₁ or R₂ may together form a cyclic compound having a piperazine structure, an imidazole structure or an imidazoline structure.

5. The method for producing a rigid polyurethane foam according to Claim 4, wherein in the formula (2), each of R₁ to R₈ which are independent of one another, is hydrogen atom, a methyl group, a hydroxyethyl group, a hydroxypropyl group, an aminoethyl group, an aminopropyl group, a monomethylaminoethyl group, a monomethylaminopropyl group, a dimethylaminoethyl group,

a dimethylaminopropyl group or an acetyl group, provided that R₇ and R₁ or R₂ may together form a cyclic compound having a piperazine structure.

6. The method for producing a rigid polyurethane foam according to Claim 1, wherein the amine compound is N-(2-dimethylaminoethyl)-N'-methylpiperazine.

7. The method for producing a rigid polyurethane foam according to Claim 1, wherein as the blowing agent, 1,1,1,3,3-pentafluoropropane (HFC-245fa) and water are used in combination.

8. The method for producing a rigid polyurethane foam according to Claim 1, wherein as the blowing agent, 1,1,1,3,3-pentafluorobutane (HFC-365mfc) and water are used in combination.

9. The method for producing a rigid polyurethane foam according to Claim 1, wherein the amine compound having at least one type of substituent selected from the group consisting of a hydroxyl group, a primary amino group and a secondary amino group in its molecule, or N-(2-dimethylaminoethyl)-N'-methylpiperazine, is used in an amount of from 0.01 to 20 parts by weight per 100 parts by weight of the polyol.

10. The method for producing a rigid polyurethane foam according to Claim 1, wherein the reaction is carried out by adding a surfactant as an auxiliary agent.

11. The method for producing a rigid polyurethane foam according to Claim 1, wherein the reaction is carried out

by adding a cross-linking agent or a chain extender as an auxiliary agent.

12. The method for producing a rigid polyurethane foam according to Claim 1, wherein the reaction is carried out
5 by adding a flame retardant as an auxiliary agent.

13. A method for producing a rigid polyurethane foam, which comprises reacting a polyol with a polyisocyanate in the presence of an amine catalyst and blowing agent, wherein as the amine catalyst, at least one amine
10 compound selected from the group consisting of N,N-dimethylethylenediamine, N,N-dimethylpropylenediamine, N,N-dimethylhexamethylenediamine, N-acetythylenediamine, N,N,N'-trimethyldiethylenetriamine, N,N,N',N''-tetramethyltriethylenetetramine, N,N,N',N'',N'''-
15 pentamethyltetraethylenepentamine, N,N,N',N'',N''',N''''-hexamethylpentaethylenhexamine or polyoxypropylenediamine; as a secondary amine compound, trimethylethylenediamine, trimethylpropylenediamine, trimethylhexamethylenediamine,
20 tetramethyldiethylenetriamine, bis(N,N-dimethylaminopropyl)amine or N-methylpiperazine; and as an alkanol amine, N,N-dimethylaminoethanol, N,N-dimethylaminoisopropanol, N,N-dimethylaminoethoxyethanol, N,N-dimethylaminoethyl-N'-methylaminoethanol, N,N-
25 dimethylaminopropyl-N'-methylaminoethanol, N,N,N'-trimethyl-N'-hydroxyethylbisaminoethyl ether, N,N-dimethylaminoethyl-N'-methylaminoethyl-N''-

methylaminoisopropanol, N,N-bis(3-dimethylaminopropyl)-N-isopropanolamine, N-(3-dimethylaminopropyl)-N,N-diisopropanolamine, N-(2-hydroxyethyl)-N'-methylpiperazine, N,N-dimethylaminohexanol, 5-
5 dimethylamino-3-methyl-1-pentanol and N-(2-dimethylaminoethyl)-N'-methylpiperazine.

14. The method for producing a rigid polyurethane foam according to Claim 13, wherein as the blowing agent, 1,1,1,3,3-pentafluoropropane (HFC-245fa) and water are
10 used in combination.

15. The method for producing a rigid polyurethane foam according to Claim 13, wherein as the blowing agent, 1,1,1,3,3-pentafluorobutane (HFC-365mfc) and water are used in combination.

15 16. The method for producing a rigid polyurethane foam according to Claim 13, wherein the amine compound having at least one type of substituent selected from the group consisting of a hydroxyl group, a primary amino group and a secondary amino group in its molecule, or N-(2-
20 dimethylaminoethyl)-N'-methylpiperazine, is used in an amount of from 0.01 to 20 parts by weight per 100 parts by weight of the polyol.

17. The method for producing a rigid polyurethane foam according to Claim 13, wherein the reaction is carried
25 out by adding a surfactant as an auxiliary agent.

18. The method for producing a rigid polyurethane foam according to Claim 13, wherein the reaction is carried

out by adding a cross-linking agent or a chain extender as an auxiliary agent.

19. The method for producing a rigid polyurethane foam according to Claim 13, wherein the reaction is carried
5 out by adding a flame retardant as an auxiliary agent.